IN THE CLAIMS

Please amend the claims as follows:

Claims 1-25 (Canceled).

Claim 26 (Currently Amended): A node configured to insert data onto a first ring for transporting packets in a clockwise direction and onto a second ring for transporting packets in a counter-clockwise direction, said first and second rings part of a metropolitan area packet network, said node comprising:

a flow control device connecting said first and second rings to a source device external to said first and second rings, said flow control device including

an input configured to accept and relay packets from said source device,

a classifier circuit connected to said input and configured to ~~assign a flow identifier to each packet and to~~ output a classified flow,

a first buffer connected to said classifier circuit and configured to buffer said classified flow, said first buffer having a rate controller which varies an output of said first buffer on a per-flow basis,

a first and second ring buffer connected to a respective one of said first and second rings, and

a controllable switch connecting said output of said first buffer to said first and ring buffers, said controllable switch controlled in response to a ring segment status so as to cause traffic, on a per-flow basis, to be queued in said first buffer and/or relayed to one of said first and second ring buffers,

wherein said ring segment status is a ring segment failure condition.

Claim 27 (Currently Amended): The node of Claim 26, wherein said classifier circuit is configured to classify each ~~packet into a~~ flow according to a priority or a QOS attribute.

Claim 28 (Currently Amended): The node of Claim 26, wherein said ring segment status ~~is one of~~ further includes a ring segment congestion condition and a ring segment availability.

Claim 29 (Previously Presented): The node of Claim 26, wherein said controllable switch is controlled so as to perform, in response to a change in said ring segment status, at least one of

redirecting a flow destined to said first ring and having a first priority to said second ring in response to a change in said ring segment status;

queuing a flow destined to said first ring and having a second priority until a predetermined condition is satisfied and then redirecting said flow having a second priority to said second ring; and

queuing a flow destined to said first ring and having a third priority until said ring segment status changes a second time and then allowing said flow having a third priority to flow to said first ring.

Claim 30 (Previously Presented): The node of Claim 29, wherein said change in ring segment status is one of a change in a ring segment congestion condition or a ring segment failure.

Claim 31 (Previously Presented): The node of Claim 29, wherein said controllable switch is controlled on the basis of whether an individual flow is a unicast flow or a multicast flow, wherein

if said individual flow is a unicast flow destined to said first ring,

said unicast flow is redirected to said second ring in response to said change in said ring segment status if a destination of said unicast flow is located on said first ring after a failed node or next to a congested link, and

said unicast flow is not redirected to said second ring in response to said change in said ring segment status if said destination of said unicast flow is located on said first ring before said failed node or congested link; and

if said individual flow is a multicast flow destined to said first ring,

said multicast flow is redirected to said second ring in response to said change in said ring segment status if all destinations of said multicast flow are located on said first ring after said failed node or next to said congested link,

said multicast flow is both maintained on said first ring and transmitted on said second ring in response to said change in said ring segment status if one destination of said multicast flow is located on said first ring before said failed node or congested link and another destination of said multicast flow is located on said first ring after a failed node or congested link, and

said multicast flow is not redirected to said second ring in response to said change in said ring segment status if all destinations of said multicast flow are located on said first ring before said failed node or congested link.

Claim 32 (Previously Presented): The node of Claim 29, wherein said controllable switch is controlled to prevent or reduce packet bleeding.

Claim 33 (Previously Presented): The node of Claim 26, further comprising:

a buffer between an output of said first buffer and an input to said controllable switch.

Claim 34 (Previously Presented): The node of Claim 33, further comprising:

first and second data insertion devices respectively connecting each of said first and second rings to a corresponding one of said first and second ring buffers

Claim 35 (Previously Presented): The node of Claim 26, further comprising:

first and second ring data removal devices connected to a respective one of said first and second rings, each of said first and second data removal devices configured to remove traffic addressed to said node from the respective first and second rings; and

a first output buffer connected to an output of said first and second ring data removal circuits.

Claim 36 (Previously Presented): The node of Claim 35, further comprising:

one or more second output buffers, each of said one or more second output buffers connected to said first output buffer, configured to buffer data on the basis of said class, and configured to output data to said one or more output destinations on a per-flow basis.

Claim 37 (Currently Amended): The node of Claim 26, wherein ~~said~~ the packets on the ring are at least one of constant bit rate (CBR), unspecified bit rate (UBR), real time variable bit rate (rt-VBR), and Control Packet (CP) packets.

Claim 38 (Previously Presented): A network containing the node described in any one of Claims 26-37.

Claim 39 (Currently Amended): A node configured insert bits onto a first channel for transporting packets and onto a second channel for transporting packets, said first and second channels being separate channels and existing in a common physical medium or in different physical mediums, said node comprising:

a flow control device connecting said first and second channels to a source device external to said first and second channels, said flow control device including

an input configured to accept and relay packets from said source device,

a classifier circuit connected to said input and configured to ~~assign a flow identifier to each packet and to~~ output a classified flow,

a first buffer connected to said classifier circuit and configured to buffer said classified flow, said first buffer having a rate controller which varies an output of said first buffer on a per-flow basis,

a first and second channel buffer connected to a respective one of said first and second channels, and

a controllable switch connecting said output of said first buffer to said first and channel buffers, said controllable switch controlled in response to a channel status so as to cause traffic, on a per-flow basis, to be queued in said first buffer and/or relayed to one of said first and second channel buffers,

wherein said channel status is a channel failure condition.

Claim 40 (Currently Amended): The node of Claim 39, wherein said classifier circuit is configured to classify each ~~packet into a~~ flow according to a priority or a QOS attribute.

Claim 41 (Currently Amended): The node of Claim 39, wherein said channel status ~~is one of~~ further includes a channel congestion condition or a channel availability.

Claim 42 (Previously Presented): The node of Claim 39, wherein said controllable switch is controlled so as to perform, in response to a change in said channel status, at least one of

redirecting a flow destined for said first channel and having a first priority to said second channel;

queuing a flow destined for said first channel and having a second priority until a predetermined condition is satisfied and then redirecting said flow having a second priority to said second channel; and

queuing a flow destined for said first channel and having a third priority until said channel status changes a second time and then allowing said flow having a third priority to flow to said first channel.

Claim 43 (Previously Presented): The node of Claim 42, wherein said change in channel status is one of a change in a channel congestion condition or a channel failure.

Claim 44 (Previously Presented): The node of Claim 42, wherein said controllable switch is controlled on the basis of whether an individual flow is a unicast flow or a multicast flow, wherein

if said individual flow is a unicast flow destined for said first channel,

said unicast flow is redirected in response to said change in said channel status to said second channel in response to said change in said channel status if a

destination of said unicast flow is located on said first channel after a failed node or next to a congested link, and

said unicast flow is not redirected to said second channel in response to said change in said channel status if said destination of said unicast flow is located on said first channel before said failed node or congested link; and

if said individual flow is a multicast flow destined for said first channel,

said multicast flow is redirected in response to said change in said channel status to said second channel in response to said change in said channel status if all destinations of said multicast flow are located on said first channel after said failed node or next to said congested link,

said multicast flow is both maintained on said first channel and transmitted on said second channel in response to said change in said channel status if one destination of said multicast flow is located on said first channel before said failed node or congested link and another destination of said multicast flow is located on said first channel after a failed node or congested link, and

said multicast flow is not redirected to said second channel in response to said change in said channel status if all destinations of said multicast flow are located on said first channel before said failed node or congested link.

Claim 45 (Currently Amended): The node of Claim 39, further comprising:

first and second data removal devices configured to remove traffic addressed to said node from the respective first and second links; and

a first output buffer connected to an output of said first and second ring data removal ~~circuits~~ devices.

Claim 46 (Previously Presented): The node of Claim 45, further comprising:

one or more second output buffers, each of said one or more second output buffers connected to said first output buffer, configured to buffer data on the basis of said class, and configured to output data to said one or more output destinations on a per-flow basis.

Claim 47 (Currently Amended): The node of Claim 39, wherein ~~said~~ the packets on the ring are at least one of constant bit rate (CBR), unspecified bit rate (UBR), real time variable bit rate (rt-VBR), and control packet (CP) packets.

Claim 48 (Previously Presented): A network containing the node described in any one of Claims 39-47.

Claim 49 (Currently Amended): A method for controlling the insertion of bits onto a first ring for transporting packets in a clockwise direction and onto a second ring for transporting packets in a counter-clockwise direction, said first and second rings part of a metropolitan area packet network, said method comprising:

accepting and relaying a packet from a source device external to said first and second rings;

classifying said packet and outputting a classified flow;

buffering said classified flow in a first buffer, and variably rate controlling the buffered classified flow on a per-flow basis; and

controllably switching said buffered classified flow to one of a first and second ring buffer in response to a ring segment status so as to control traffic, on a per-flow basis, entering said first and second ring buffers; and

inserting packets from one of said first and second ring buffers onto a respective one of said first and second rings,

wherein said ring segment status is a ring segment failure condition.

Claim 50 (Currently Amended): The method of Claim 49, wherein said step of assigning a class comprises:

classifying each ~~packet into a~~ flow according to a priority or a QOS parameter.

Claim 51 (Currently Amended): The method of Claim 49, wherein said ring segment status ~~is one of~~ further includes a ring segment congestion condition or a ring segment availability.

Claim 52 (Previously Presented): The method of Claim 49, in response to a change in said ring segment status, further comprising at least one of:

redirecting a flow destined for said first ring and having a first priority to said second ring;

queuing a flow destined for said first ring and having a second priority until a predetermined condition is satisfied and then redirecting said flow having a second priority to said second ring; and

queuing a flow destined for said first ring and having a third priority until said ring segment status changes a second time and then allowing said flow having a third priority to flow to said first ring.

Claim 53 (Previously Presented): The method of Claim 52, wherein said change in ring segment status is one of a change in a ring segment congestion condition or a ring segment failure.

Claim 54 (Previously Presented): The method of Claim 52, wherein

if said individual flow is a unicast flow destined for said first ring,

said unicast flow is redirected to said second ring in response to said change in said ring segment status if a destination of said unicast flow is located on said first ring after a failed node or next to a congested link, and

said unicast flow is not redirected to said second ring in response to said change in said ring segment status if said destination of said unicast flow is located on said first ring before said failed node or congested link; and

if said individual flow is a multicast flow destined for said first ring,

said multicast flow is redirected to said second ring in response to said change in said ring segment status if all destinations of said multicast flow are located on said first ring after said failed node or next to said congested link,

said multicast flow is both maintained on said first ring and transmitted on said second ring in response to said change in said ring segment status if one destination of said multicast flow is located on said first ring before said failed node or congested link and another destination of said multicast flow is located on said first ring after a failed node or congested link, and

said multicast flow is not redirected to said second ring in response to said change in said ring segment status if all destinations of said multicast flow are located on said first ring before said failed node or congested link.

Claim 55 (Previously Presented): The method of Claim 52, wherein said step of controllably switching comprises controllably switching to prevent or reduce packet bleeding.

Claim 56 (Previously Presented): The method of Claim 49, further comprising:

removing data from one of said first and second rings;

buffering said data removed from said first and second ring on the basis of said class; and

outputting data to one or more output destinations external to said first and second rings on a per-flow basis.

Claim 57 (Currently Amended): The method of Claim 49, wherein ~~said~~ the packets on the ring are at least one of constant bit rate (CBR), unspecified bit rate (UBR), real time variable bit rate (rt-VBR), and control packet (CP) packets.

Claim 58 (Currently Amended): A method for controlling the assignment of data to a first channel for transporting packets and to a second channel for transporting packets, said first and second channels being separate channels existing in a common physical medium or in different physical mediums, said method comprising:

accepting and relaying a packet from a source device external to said first and second channels;

classifying said packet and outputting a classified flow;

buffering said classified flow in a first buffer, and variably rate controlling the buffered classified flow on a per-flow basis; and

controllably switching said buffered classified flow to one of a first and second channel buffer in response to a channel status so as to control traffic, on a per-flow basis, entering said first and second channel buffers; and

inserting packets from one of said first and second channel buffers onto a respective one of said first and second channels,

wherein said channel status is a channel failure condition.

Claim 59 (Previously Presented): The method of Claim 58, wherein said step of assigning a class comprises:

classifying each flow according to a priority or a QOS.

Claim 60 (Currently Amended): The method of Claim 58, wherein said channel status ~~is one of~~ further includes a channel congestion condition and a channel availability.

Claim 61 (Previously Presented): The method of Claim 58, in response to a change in said channel status, further comprising at least one of:

redirecting a flow for said first channel and having a first priority to said second channel;

queuing a flow for said first channel and having a second priority until a predetermined condition is satisfied and then redirecting said flow having a second priority to said second channel; and

queuing a flow for said first channel and having a third priority until said channel status changes a second time and then allowing said flow having a third priority to flow to said first channel.

Claim 62 (Previously Presented): The method of Claim 61, wherein said change in channel status is one of a change in a channel congestion condition or a channel failure.

Claim 63 (Previously Presented): The method of Claim 61, wherein

if said individual flow is a unicast flow destined for said first channel,

said unicast flow is redirected to said second channel in response to said change in said channel status if a destination of said unicast flow is located on said first channel after a failed node or next to a congested channel, and

said unicast flow is not redirected to said second channel in response to said change in said channel status if said destination of said unicast flow is located on said first channel before said failed node or congested channel; and

if said individual flow is a multicast flow destined for said first channel,

said multicast flow is redirected to said second channel in response to said change in said channel status if all destinations of said multicast flow are located on said first channel after said failed node or next to said congested channel,

said multicast flow is both maintained on said first channel and transmitted on said second channel in response to said change in said channel status if one destination of said multicast flow is located on said first channel before said failed node or congested channel and another destination of said multicast flow is located on said first channel after a failed node or congested channel, and

said multicast flow is not redirected to said second channel in response to said change in said channel status if all destinations of said multicast flow are located on said first channel before said failed node or congested channel.

Claim 64 (Previously Presented): The method of Claim 61, wherein said step of controllably switching comprises controllably switching to prevent or reduce packet bleeding.

Claim 65 (Previously Presented): The method of Claim 58, further comprising:

removing data from one of said first and second channels;

buffer said data removed from said first and second channel on the basis of said class; and

outputting data to one or more output destinations external to said first and second channels on a per-flow basis.

Claim 66 (Currently Amended): The method of Claim 58, wherein ~~said~~ the packets on the ring are at least one of constant bit rate (CBR), unspecified bit rate (UBR), real time variable bit rate (rt-VBR), and control packet (CP) packets.

Claim 67 (Currently Amended): A method for controlling an entry of packets onto a first ring for transporting packets in a clockwise direction and onto a second ring for transporting packets in a counter-clockwise direction, said first and second rings part of a metropolitan area packet network, said method comprising:

controllably assigning the packets, on a per-flow basis and in response to a ring segment status, to the first ring for an initial entry of said packets onto the first and second rings,

wherein said ring segment status is a ring segment failure condition.

Claim 68 (Previously Presented): The method of Claim 67, further comprising:

controllably removing the packets from one of the first and second rings on a per-flow basis for delivery to a destination device.

Claim 69 (Previously Presented): The method of Claim 67, further comprising:

controllably reassigning on a per-flow basis the packets previously assigned to the first ring to the second ring in response to a change in ring segment status.

Claim 70 (Currently Amended): A node configured to control an entry of packets onto a first ring for transporting packets in a clockwise direction and onto a second ring for transporting packets in a counter-clockwise direction, said first and second rings part of a metropolitan area packet network, said node comprising:

a controllable insertion device configured to assign the packets on a per-flow basis to the first ring for an initial entry of said packets onto the first and second rings in response to a ring segment status,

wherein said ring segment status is a ring segment failure condition.

Claim 71 (Previously Presented): The node of Claim 70, further comprising:

a controllable removal device configured to remove the packets from the first and second rings on a per-flow basis for delivery to a destination device.

Claim 72 (Previously Presented): The method of Claim 70, wherein said controllable insertion device is further configured to controllably reassign on a per-flow basis the packets previously assigned to the first ring to the second ring in response to a change in ring segment status.

Claim 73 (Currently Amended): A node configured to control an entry of packets onto a first ring for transporting packets in a clockwise direction and onto a second ring for transporting packets in a counter-clockwise direction, said first and second rings part of a metropolitan area packet network, said node comprising:

means for controllably assigning the packets, on a per-flow basis and in response to a ring segment status, to the first ring for an initial entry of said packets onto the first and second rings; and

means for controllably removing the packets from the first and second rings on a per-flow basis for delivery to a destination device,

wherein said ring segment status is a ring segment failure condition.

Claim 74 (Previously Presented): The method of Claim 73, further comprising:

means for controllably reassigning on a per-flow basis the packets previously assigned to the first ring to the second ring in response to a change in ring segment status.

Claim 75 (Currently Amended): A method for controlling an entry of packets onto first and second channels, said method comprising:

controllably assigning the packets, on a per-flow basis and in response to a channel status, to the first channel for an initial entry of said packets onto the first and second channels,

wherein said channel status is a channel failure condition.

Claim 76 (Previously Presented): The method of Claim 75, further comprising:

controllably removing the packets from one of the first and second channels on a per-flow basis for delivery to a destination device.

Claim 77 (Previously Presented): The method of Claim 75, further comprising:

controllably reassigning on a per-flow basis the packets previously assigned to the first channel to the second channel in response to a change in channel status.

Claim 78 (Currently Amended): A node configured to control an entry of packets onto first and second channels, said node comprising:

a controllable insertion device configured to controllably assigning the packets, on a per-flow basis and in response to a channel status, to the first channel for an initial entry of said packets onto the first and second channels,

wherein said channel status is a channel failure condition.

Claim 79 (Previously Presented): The node of Claim 78, further comprising:

a controllable removal device configured to remove the packets from the first and second channels on a per-flow basis for delivery to a destination device.

Claim 80 (Previously Presented): The method of Claim 78, wherein said controllable insertion device is further configured to controllably reassign on a per-flow basis the packets previously assigned to the first channel to the second channel in response to a change in channel status.

Claim 81 (Currently Amended): A node configured to control an entry of packets onto first and second channels, said node comprising:

means for controllably assigning the packets, on a per-flow basis and in response to a channel status, to the first channel for an initial entry of said packets onto the first and second channels; and

means for controllably removing the packets from one of the first and second channels on a per-flow basis for delivery to a destination device,

wherein said channel status is a channel failure condition.

Claim 82 (Previously Presented): The method of Claim 81, further comprising:

means for controllably reassigning on a per-flow basis the packets previously assigned to the first channel to the second channel in response to a change in channel status.